

REMARKS

Claims 1-24 are pending; claims 1, 12 and 18-25 been amended in several particulars. Note that no claim 17 was originally filed, accordingly, the forgoing amendment rennumbers claims 18-25 as claims 17-24, respectively.

The Examiner has erroneously objected to Figs. 2A-2D as not being designated as "Prior Art". Note, however, that Figs. 2A-2D are the result of the Applicant's own work using the "Prior Art" device of Fig. 1. Accordingly, Figs. 2A-2D are not prior art.

Additionally, as evidenced from the Declaration/Oath, the Applicant is a citizen of Korea, and, as such, performed the work on the device of Fig. 1 in Korea in order to obtain the results depicted in Figs. 2A-2B. Therefore, since there is no showing that Figs. 2A-2D were known to anyone other than the Applicant *in this country* nor is there a showing that Figs. 2A-2D were *patented or published in this country or a foreign country*, then Figs. 2A-2D can not be deemed to be "Prior Art".

Further, the Examiner has erroneously indicated that it is necessary to label Figs. 2A-2D "in order to clarify what applicant's invention is". Note, however, that the claims define the Applicant's invention and the specification provides a description of the claimed invention. Accordingly, since Figs. 2A-2D are related to Fig. 1, and since there is nothing in the claims or the specification which would remotely suggest that Figs. 2A-2D are related to the claimed invention, then it is not necessary to clarify the claimed invention by adding an extraneous label to Figs. 2A-2D.

Therefore, the objection to Figs. 2A-2D is deemed to be in error, and should be withdrawn.

The Examiner has objected to the specification with respect to the section headed **CROSS REFERENCE TO RELATED APPLICATIONS**, and with respect to the location of a portion of the specification found between page 7, line 12 and page 10, line 8.

First, the Applicant respectfully requests whether it would be acceptable to the Examiner to change "CROSS REFERENCE TO RELATED APPLICATIONS" to --CLAIM OF PRIORITY--?

Second, the Examiner argues that an "overwhelming majority" of patents that have issued do not include references to foreign documents in the cross reference to related applications section. The Examiner's argument is untenable, since the Examiner has not shown that the originally filed specifications for these issued patents attempted to include a reference to foreign documents in the cross reference to related applications section; and the Examiner has not shown that such an attempt was prohibited by an objection as in the present case.

Third, that portion of the specification between page 9, line 1 and page 10, line 8 discuss the Applicant's work with regard to Figs. 2A-2D, which figures, as discussed earlier, are not prior art. Accordingly, since the discussion of Figs. 2A-2D are the result of the Applicant's work with respect to the apparatus of Fig. 1 and as such are entitled to be discussed in the detailed description portion of the specification, then it is clearly evident that the description of Fig. 1 should remain as originally filed to preserve the continuity of the specification.

The Examiner should note the "Forward" section of the MPEP which states:

"The Manual does not have the force of law or the force of the Patent Rules of Practice in Title 37, Code of Federal Regulations."

The "Foreward" also states indicates that the MPEP outlines procedures which the Examiner's are required or authorized to follow. Accordingly, the Examiner should point out where the MPEP requires or authorizes the Examiner to object to the specification because it refers to a foreign document in the cross reference to related applications section or because a detailed discussion of a figure labelled "Prior Art" is in the detailed description section of the specification instead of the background section of the specification.

The specification has been objected to and claims 1-24 have subsequently been rejected under 35 U.S.C. §112, first paragraph. The Applicant respectfully traverses this objection/rejection for the following reason(s).

37 CFR §§ 1.83 "Content of drawing", states:

(a) The drawing must show every feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g. a labeled rectangular box).

MPEP 2164 "The Enablement Requirement" states:

"The enablement requirement refers to the requirement of 35 U.S.C. 112, first paragraph that the specification describe how to make and how to use the invention. The invention that one skilled in the art must be enabled to make and use is that defined by the claim(s) of the particular application or patent.

The purpose of the requirement that the specification describe the invention in such terms that one skilled in the art can make and use the claimed invention is to ensure that the invention is communicated to the interested public in a meaningful way. The information contained in the disclosure of an application must be sufficient to inform those skilled in the relevant art how to both make and use the claimed invention. Detailed procedures for making and using the invention may not be necessary if the description of the invention itself is sufficient to permit those skilled in the art to make and use the invention. A patent claim is invalid if it is not supported by an enabling disclosure." (emphasis added)

MPEP 2164.01 Test of Enablement [R-1]

"Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The test of enablement is whether one skilled in the art could make or use the claimed invention from the disclosures in the patent coupled with information known in the art without undue experimentation. United States v. Teletronics, Inc., 857 F.2d 778, 8 USPQ2d 1217 (Fed. Cir. 1988); In re Stephens, 529 F.2d 1343, 188 USPQ 659 (CCPA 1976). A patent need not teach, and preferably omits, what is well known in the art. Spectra-Physics, Inc. v. Coherent, Inc., 827 F.2d 1524, 3 USPQ2d 1737 (Fed. Cir. 1987). Determining enablement is a question of law based on underlying factual findings. In re Vaeck, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991); Atlas Powder Co. v. E.I. duPont de Nemours & Co., 750 F.2d 1569, 224 USPQ 409 (Fed. Cir. 1984)." (emphasis added)

The Examiner states:

"The specification does not enable one of ordinary skill [in the art] to make the printing control means, the data bus means and the beam scanning means because the structure for performing the separate functions attributed thereto is not disclosed".

First, the printing control means, the data bus means and the beam scanning means are disclosed as being prior art with respect to "Prior Art" Fig. 1. The Prior Art device of Fig. 1, and as disclosed, has a print control unit 20, *i.e.* printing control means, which controls a mechanism required for printing video data with electrical signals and supplies beam data, used to switch the light generation of a light source element 68 located in a beam scanning unit 30, to a light source element through a line 22 by obtaining the beam data via a line 12 from the video data received. Print control unit 20 also receives beam detection signals generated by light source element 68 via line 24 and which also supplies a horizontal synchronization signal to line 14. Further, the Prior Art device of Fig. 1, and as disclosed, has a beam scanning unit 30 *i.e.*, beam scanning means, which is switched over according to beam data provided on line 22 to generate a laser beam to be scanned upon a photosensitive, uniformly changed circumferential surface of a drum; also, as disclosed,

beam scanning unit 30, in response to the beam generated, sends beam detection signals to a line 24.
See page 8, lines 5–13 of the present specification.

Further, data busses are so notoriously well known in the art that it is inconceivable as to why the Examiner would base a nonenabling objection/rejection on such a well known means for transmitting signals.

Claim 1 calls for a:

printing control means for providing beam data in response to said chopped data, for controlling printing of the video data by generating electrical signals to control generation of a light beam by a light source element, and for generating said horizontal synchronization signal in correspondence with a beam detection signal derived from the light beam by the light source element.

Claim 18 calls for a:

*printing control means for generating beam data in response to said chopped video data; and.....
....said printing control means generating said horizontal synchronizing signal in dependence upon said beam detection signal.*

The difference between the print control unit claimed and that of Fig. 1 is that the claimed print control unit provides beam data in response to chopped data whereas the the print control unit in Fig. 1 provides beam data in response to data (on line 12) that is not chopped. Accordingly, no undo experimentation is required in connecting chopping unit 100 (Fig. 3) between data transmitting unit 10 and print control unit 20 of Prior Art Fig. 1.

Claim 18 calls for a:

beam scanning means for providing a laser beam for defining images corresponding to said beam data and for generating a beam detection signal derived from scanning of said laser beam

There is no difference between the beam scanning means claimed and the beam scanning unit 20 of Prior Art Fig. 1. Therefore, no undo experimentation is required in connecting beam scanning unit 30 and print control unit 20 of Prior Art Fig. 1.

Further the data bus means of claim 18 is simply a well known data bus.

Accordingly, one of ordinary skill in the art would not need to perform any undo experimentation to make and use the present invention which incorporates the printing control means, the data bus means and the beam scanning means of the prior art. Therefore, the objection/rejection is deemed to be in error and should be withdrawn.

Second, MPEP 2164.04 places the burden on the Examiner to establish a *prima facie* basis of nonenablement. MPEP 2164.04 Burden on the Examiner Under the Enablement Requirement states:

In order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. In re Wright, 999 F.2d 1557, 27 USPQ2d 1510 (Fed. Cir. 1993) (examiner must provide a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure). A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. Assuming that sufficient reason for such doubt exists, a rejection for failure to teach how to make and/or use will be proper on that basis. In re Marzocchi, 439 F.2d 220, 169 USPQ 367 (CCPA 1971). As stated by the court, "it is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. Otherwise, there would be no need for the applicant to go to the trouble and expense of supporting his presumptively accurate disclosure." 169 USPQ at 370.

The Examiner has, however, rejected the claims under 35 USC §103 based on, in part, the disclosure of the Prior Art device of Fig.1. In making the rejection under §103, the Examiner has thus indicated that one of ordinary skill in the art, using the teachings of the applied art, would have been able to make and use the invention claimed. It is not understood how the teachings of Tomita et al. and Hayashi et al. would have enabled one of ordinary skill in the art to modify the device of Prior Art Fig. 1, but yet be unable to modify the device of Prior Art Fig. 1 based on the teachings found in the present specification. Accordingly, the Examiner has failed to establish a reasonable basis to question the enablement provided for the claimed invention. Therefore, the objection/rejection is deemed to be in error and should be withdrawn.

Third, the present specification, page 3, lines 6–13, states:

In one contemporary approach to control printing density, a print control unit controls printing of video data with electrical signals and supplies beam data, used during scanning of an image onto the circumstantial exterior surface of the drum with a beam of light emitted by the light source element video data signal. This may be seen in for example, the *PICTURE REPRODUCING APPARATUS* of M. Yamamoto, et al., U.S. Patent No. 3,894,182. Also, the print control unit receives beam detection signals generated by the light source element and supplies a horizontal synchronization signal and a bias voltage control signal to a bias voltage generator that provides the bias voltage to the developer.

Accordingly, Yamamoto et al. also teaches that beam scanning units and the print control units are well known in the art. Therefore, the rejection is deemed to be in error and should be withdrawn.

Claims 1–24 were rejected under 35 U.S.C. §112, second paragraph based upon a number of deficiencies kindly noted by the Examiner. Accordingly the above amendment is believed to correct for those deficiencies not traversed below.

The Examiner has erroneously indicated that the claims include means without reciting a function for the claimed means, noting in particular the *mode selecting means* of claim 5. The *mode selecting means* of Claim 5 has the function of *enabling a user to change a characteristic of said second clock signal*, as claimed. Accordingly, each of the claimed means, and in particular the *mode selecting means* of claim 5, have a function as required by 35 U.S.C. §112, paragraph six.

The Examiner has again rejected the claims because of the recitation of plural functions for a single claimed means. There is no provision set forth in 35 U.S.C. §112, second paragraph which prohibits claim language for claiming a single means for performing more than one function.

In re Kelley, 134 USPQ 397 states:

"We see no reason why a single structural element....which performs two separate functions, cannot support a claim reciting broadly these separate functions." See also *Palmer v. United States*, 163 USPQ 250.

The Examiner has indicated that he is not persuaded by *Kelley* because *Kelley* was directed towards the matter of double inclusion. In *Kelley*, the issue to be decided was whether the claims were supported by the disclosure (see the last paragraph in the right hand column on page 397 and [2] on page 400, in *Kelley*). In the present application, for example, claim 1 called for:

printing control means for providing beam data in response to said chopped data, for controlling printing of the video data by generating electrical signals to control generation of a light beam by a light source element, and for generating said horizontal synchronization signal in correspondence with a beam detection signal derived from the light beam by the light source element.

The specification, page 11, lines 5-11, states:

"A printing control unit 20 controls the mechanism required for printing the video data by means of electrical signals and provides the beam data used to switch the light generation of light source element 68 located in the beam scanning unit 30 to the light source element via a line 32 to emit light beam 90. The beam data is obtained from the chopped video data fed in via a line 102. Also the printing control unit 20 receives and processes the beam detection signals generated by the light source element through a line 34, and

provides via line 14 the horizontal synchronization signal generated by processing the beam detection signals."

Accordingly, the specification discloses more than one function (see the underlined sections above) performed by the printing control unit. Claim 1 referred to the printing control unit as a printing control means which performs more than one function. The functions performed by the printing control means are supported by the specification as noted above. Accordingly, since the language used in claim 1 is supported by the specification, as in *Kelley*, we see no reason why a single structural element which performs two separate functions, cannot support a claim reciting broadly these separate functions.

Therefore, a claim which recites more than one function being performed by a single means, wherein the specification supports such claim language, is not indefinite under 35 U.S.C. §112, paragraph two.

Claims 1-24 were rejected under 35 U.S.C. §103, as rendered obvious and unpatentable, over Prior Art Figs. 1 and 2A-2D, in view of Tomita et al. and Hayashi et al. The applicant respectfully traverses this rejection for the following reason(s).

Prior Art Fig. 1 illustrates an electrophotographic developing device having a beam scanning unit 30 which is switched over according beam data to generate a laser beam to be scanned upon a photosensitive drum.

It is important to note that the problem confronted by the Applicant must be considered in determining whether it would have been obvious to combine references in order to solve that problem. See *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 7 USPQ2d 1315.

Accordingly, the question raised is, if one of ordinary skill in the art were looking for an alternate method for adjusting the density of printed images without adjusting the bias voltage of a developing unit in a laser printing device, such as that depicted by Prior Art Fig. 1, would one look have looked to the Tomita and Hayashi et al. patents?

Tomita teaches one of ordinary skill in the art that in order to compensate for the different characteristics of each element of the LED array it has been proposed to change the driving time for each element. However, this will result in uneven dot image shapes and a lack of uniformity (col. 1, lines 20–34). Tomita further teaches that a proposed fix to the above mentioned problem results in a possibility of unevenness in density among the elements. Tomita contemplates a method and apparatus for driving a solid scan type recording head (col. 2, lines 32–40) capable of reducing the difference in density of the dots shapes generated by each element.

Tomita is for a solid scan device, *i.e.*, a device using an LED array whereas the device in Prior Art Fig. 1 uses a laser beam. The problem of different densities between elements in an LED array do not occur in a laser driven device, which does not have a plurality of elements. Accordingly, one of ordinary skill in the art would not have been motivated by Tomita to modify the laser printing device of Prior Art Fig. 1.

Applicant teaches that in order to control the printing density in a laser device, such a Prior Art Fig. 1, it is known that the bias voltage of a developer is changed to adjust the amount of the toner developed. Accordingly, an object of the present invention is to adjust the density of printed images without adjusting the bias voltage of a developing unit. Tomita is silent with regard to changing the bias voltage of a developer to adjust the amount of the toner developed. Hayashi et al. is also silent in this regard.

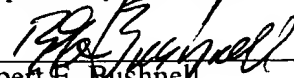
According to the configuration and method of the present invention, chopped video data is generated by the printing control unit as beam data, and is then used for controlling the amount of light illuminating the photosensitive drum. The amount of the light is optimally controlled by selecting a second clock signal. Therefore, the user can adjust the density of printed images without adjusting the bias voltage of a developing unit.

Hayashi et al. does not provide any teaching which would have suggested using Tomita in order to modify the laser printing device of Prior Art Fig. 1. Hayashi et al. does suggest that a problem regarding image density may caused by humidity in laser printing device. Hayashi et al., however, corrects for this problem by adjusting the current supplied to the laser element (Hayashi et al., col. 7, lines 1-5). Hayashi et al. does not suggest that this varying of the current to the laser device is in any way an alternative to the known method of changing the bias voltage of a developer to adjust the amount of the toner developed. Hayashi et al. may teach modifying the current supplied to beam scanning unit 30 of Prior Art Fig. 1, but Hayashi et al. clearly does not teach nor suggest adjusting density in Prior Art Fig. 1 by chopping the data provided by data transmitting unit 10 in accordance with a second clock signal in order to provide chopped data to the print control unit 20.

Therefore, the rejection is deemed to be in error and should be withdrawn.

The examiner is respectfully requested to reconsider the application, withdraw the objections and/or rejections and pass the application to issue in view of the above amendments and/or remarks.

Respectfully submitted,



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